



# CITY OF LODI

## COUNCIL COMMUNICATION

**AGENDA TITLE:** Approve specifications and authorize advertisement for bid for 72,500 feet of ADSS fiber optic cable, pole line hardware, fiber optic test and splicing equipment and GE OC-3 JungleMUX Multiplexer equipment and appropriate funding for engineering, specialized fiber optic training, substation and overhead construction work associated with this project (\$280,000) (EUD)

**MEETING DATE:** November 5, 2003

**SUBMITTED BY:** Electric Utility Director

**RECOMMENDED ACTION:** That the City Council approve the specifications for 72,500 feet of ADSS fiber optic cable, pole line hardware, fiber optic test and splicing equipment and GE OC-3 JungleMUX Multiplexer equipment and appropriate \$280,000 to fund for engineering, specialized fiber optic training, substation and overhead construction work associated with this project.

**BACKGROUND INFORMATION:** At the October 21, 2003 Shirtsleeve Session, Electric Utility Staff presented Council with the proposed Fiber Optic Network Project. This project will provide for a high-speed communication Sonet OC-3 Fiber Optic System for Supervisory

Control and Data Acquisition (SCADA), telephone and video security for the City's electrical substations. The system will be built by City forces and utilize the existing 60kV route between each of the City's electrical substations.

Staff is requesting the City Council approve the specifications and authorize bidding for materials, testing and splicing equipment at an estimated cost of \$346,000, and staff will return to Council for award and appropriation of funds at a later date. The cable bid specification; pole line hardware and fiber optic test and splicing equipment lists are attached.

In addition, staff is also requesting appropriation of \$280,000 for funding to begin engineering, training and construction work associated with this project.

**FUNDING:** \$280,000 - Included in the 2003-2005 Financial Plan and Budget. Business Unit 161685

**Funding Approval:** Vicky McAthie  
Vicky McAthie  
Finance Director

Alan N. Vallow  
Alan N. Vallow  
Electric Utility Director

**PREPARED BY:** Al Smatsky, Senior Electrical Estimator  
ANV/AMS/lst  
C: City Attorney  
Purchasing Officer

**APPROVED:**

H. Dixon Flynn  
H. Dixon Flynn -- City Manager



Specifications  
FIBER OPTIC  
TEST AND SPLICING EQUIPMENT

November 2003

**CITY OF LODI**  
**ELECTRIC UTILITY DEPARTMENT**

Book No. \_\_\_\_\_

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**FIBER OPTIC  
TEST AND SPLICING EQUIPMENT**

**SECTION 1  
NOTICE INVITING BIDS**

---

CITY OF LODI, CALIFORNIA

The City of Lodi hereby invites sealed proposals to furnish and deliver fiber optic test and splicing equipment to the City of Lodi, California.

Each bid shall be in accordance with this notice and specifications on file and available from the Purchasing Officer, Lodi City Hall Annex, 212 West Pine Street, Lodi, California 95240, (209) 333-6777. No bid will be considered unless it is submitted on a proposal form furnished by the City of Lodi.

Sealed proposals shall be delivered to the Purchasing Officer at the Lodi City Hall Annex, 212 West Pine Street, Lodi, CA 95240 (P.O. Box 3006, Lodi, CA 95241-1910) at or before

**11:00 a.m., Wednesday, November 26, 2003.**

At that date and hour said sealed proposals will be publicly opened and read in the Public Works Conference Room, City Hall, 221 West Pine Street, Lodi, California. Bidders or their authorized representatives are invited to be present.

The City of Lodi reserves the right to reject any or all bids, to waive any informality in any bid, to accept other than the lowest bid, or not to award the bid.

Reference is hereby made to said specifications for further details, which specifications and this notice shall be considered part of any contract made pursuant thereto.

CITY OF LODI  
Joel E. Harris  
Purchasing Officer

**FIBER OPTIC  
TEST AND SPLICING EQUIPMENT**

**SECTION 2  
INFORMATION TO BIDDERS**

**SUBMISSION OF BIDS**

- A. The Purchasing Officer will receive sealed bids at the following address until

**11:00 a.m., Wednesday, November 26, 2003.**

- B. Bids shall be submitted under sealed cover, plainly marked "Proposal – Bid Opening, Fiber Optic Test and Splicing Equipment". Bids which are not properly identified may be disregarded. Bids which are not received by 11:00 a.m. Wednesday, **November 26, 2003**, will be returned to the bidder unopened.

Bids shall be submitted

To: Lodi City Council  
c/o Purchasing Officer

(If delivered by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If delivered by mail):  
P O Box 3006  
Lodi CA 95241-1910

**BID OPENING**

- A. At 11:00 a.m., Wednesday, **November 26, 2003**, or as soon as possible thereafter, in the Public Works Conference Room, City Hall, 221 West Pine Street, Lodi, California, bids will be publicly opened and read. Bidders or their authorized representatives are invited to be present.

**PROPOSAL FORM**

- A. Prospective bidders are furnished with one proposal form included with the specifications.
- B. The proposal must be signed with the full name and address of the bidder, by an authorized representative of the company.
- C. The City of Lodi (hereinafter "City") reserves the right to accept other than the lowest bid, or to reject any or all bids.

**REJECTION OF PROPOSALS**

Bids may be rejected if they show any alteration of proposal form, additions not called for, or alternative bids not properly documented. Erasures or irregularities of any kind may also be cause for rejection.

**AWARD OF BID**

- A. The award of the bid, if it be awarded, will be to the lowest responsible bidder whose bid proposal complies with all the requirements herein described.
- B. In evaluating the bids and determining lowest responsible bidder and lowest cost to the City, the City will consider the Sales Tax Credit in the amount of one percent (1%) of the purchase price of the materials or equipment, when such purchase is consummated at the retailer's place of business and such business:
  - 1. Is located within the City of Lodi;
  - 2. Is licensed by the California State Board of Equalization to collect sales tax at the local place of business;
  - 3. Maintains a valid City of Lodi Business License.
- C. Where alternative bids are received, the City Council reserves the right to select the bid most advantageous to the City. The award, if made, will be made within sixty days after the opening of the bids.
- D. In case of tie bids, consideration will be given to bids as described in "Award of Bid", Paragraph B, above. If that section does not apply to resolution of the tie, the tie will be broken by a coin toss, conducted by the City Purchasing Officer. Tie bidders will be notified and may be present.

**PRICES**

All quoted prices shall be current and firm for at least ninety days after date of bid opening. Prices to be F.O.B. delivered to Electric Utility Department, 1331 South Ham Lane, Lodi, California 95242.

**SALES AND USE TAXES**

All quotations submitted shall include 7.75% California Sales or Use Taxes, and all sales shall be subject to California Sales or Use Taxes in effect at the time of transaction.

**PAYMENTS**

- A. Invoices shall be submitted only for items and quantities ordered for release and delivery, and delivered subsequent to such order release, and shall indicate sales or use taxes as separate items apart from the cost F.O.B. point of delivery. Purchaser's item description and release number shall appear on all invoices. All invoices shall be rendered in duplicate.
- B. Full payment by the purchaser shall not release supplier of the responsibility to fully carry out all bid obligations nor be construed by supplier as acceptance of the work hereunder by purchaser.

**WARRANTY**

The fiber optic test and splicing equipment shall be free from defects. If any portion of a manufacturer's equipment is found to be defective within one year of delivery, the manufacturer shall be responsible for the cost of repair or replacement of such equipment.

**FIBER OPTIC  
TEST AND SPLICING EQUIPMENT**

**SECTION 3  
BID PROPOSAL**

**CITY OF LODI, CALIFORNIA**

Date: June 2003

To: The Lodi City Council  
c/o Purchasing Officer  
City Hall Annex

(If by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If by mail);  
P O Box 3006  
Lodi CA 95241-1910

From: \_\_\_\_\_  
( N a m e o f B i d d e r )

The undersigned, as bidder, declares to have carefully examined the Notice Inviting Bids, Information to Bidders, and Specifications filed for furnishing and delivering this material or equipment, and agrees to be fully informed regarding all of the conditions affecting the material or equipment to be furnished for the completion of the order, and further agrees that the information was secured by personal investigation and research and not from any estimate of a City employee, and that no claim will be made against the City by reason of estimates, tests or representations of any officer or agent of the City, and proposes and agrees if the proposal be accepted, to furnish the City of Lodi the necessary equipment or material specified in the bid in the manner and time therein set forth. It has been noted the City of Lodi reserves the right to accept all or part of this bid, to reject any or all bids, or to accept other than the lowest bid.

Material or equipment listed below is to be in accordance with the City of Lodi specifications attached hereto. The bidder will submit a detailed list of any and all exceptions taken to these specifications. In the absence of such a list, it will be understood that the bidder's proposal is based on strict conformance to the specifications in all respects. All exceptions taken will be evaluated, and a determination as to acceptability of the exception will be made by the City of Lodi before the award is made.

If awarded the bid, the undersigned agrees to design, furnish and deliver the material or equipment described in the specifications, and to take in full payment therefor the following unit and total prices, to-wit:



**FIBER OPTIC  
TEST AND SPLICING EQUIPMENT**

**SECTION 3  
BID PROPOSAL**

QUANTITY	DESCRIPTION	UNIT PRICE
1	<b>Alcoa Fujikura Fusion Splicer</b> Catalog #S012800 – FSM-40SB kit with CT-20-12 cleaver	\$ _____
1	<b>Fiber Collector System FC-01</b> Catalog #S012760 for CT-20-12 cleaver	\$ _____
1	<b>Noyes OTDR</b> M600-K-QUAD-SC-SC-USA.	\$ _____
1	<b>Alcoa Fujikura Hybrid Two Fiber Launch Box</b> FB2-M6-SM-75-SC1-SC2-SC1-SC2.	\$ _____
1	<b>Noyes Optical Fiber Identifier</b> OFI200B.	\$ _____
1	<b>Alcoa Fujikura Optical Power Meter</b> OPM-5-3C	\$ _____
1	<b>Alcoa Fujikura Adaptor Caps Type SC</b> 8800-00-0209.	\$ _____
1	<b>Alcoa Fujikura Optical Laser Source</b> OLS2-DUAL with 8400-00-0073 SC Interface/SM.	\$ _____
1	<b>Noyes Video Fiber Scope</b> VS300.	\$ _____
Sub Total		\$ _____
Sales Tax 7.75%		\$ _____
<b>TOTAL AMOUNT</b>		<b>\$ _____</b>

**FIBER OPTIC  
TEST AND SPLICING EQUIPMENT**

**SECTION 3  
BID PROPOSAL**

It is understood and agreed that if this Proposal is accepted, the prices quoted above are inclusive of sales or use taxes, or similar tax now imposed by Federal, State, or other governmental agency upon the material or equipment specified.

The undersigned has checked carefully all the above figures and understands that the City and its officers and employees will not be responsible for any errors or omissions on the part of the undersigned in completing this bid.

In any case where discrepancy in extensions may occur, the Bidder agrees that the unit price shall be taken as the correct figure.

The undersigned, as bidder, hereby declares that the only persons or firms interested in the proposal as principal or principals is or are named herein and that no other persons or firms than herein mentioned have any interest in this proposal, that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith, without collusion or fraud.

This bid may be withdrawn by the written request of an authorized representative of the bidding company at any time prior to the scheduled time for the opening of bids or prior to any authorized postponement thereof.

The undersigned hereby designates as the office to which such notice of acceptance may be mailed or delivered:

Name of Company:	_____
Address:	_____
City, State, ZIP	_____
Authorized Signature:	_____
Name:	_____
Title:	_____
Telephone No.:	_____
FAX Number:	_____
Date:	_____



Specifications  
POLE LINE MATERIAL  
FOR FIBER OPTIC SYSTEM

November 2003

**CITY OF LODI**  
**ELECTRIC UTILITY DEPARTMENT**

Book No. \_\_\_\_\_

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**POLE LINE MATERIAL  
FOR FIBER OPTIC SYSTEM**

**SECTION 1  
NOTICE INVITING BIDS**

---

CITY OF LODI, CALIFORNIA

The City of Lodi hereby invites sealed proposals to furnish and deliver pole line material for fiber optic system to the City of Lodi, California.

Each bid shall be in accordance with this notice and specifications on file and available from the Purchasing Officer, Lodi City Hall Annex, 212 West Pine Street, Lodi, California 95240, (209) 333-6777. No bid will be considered unless it is submitted on a proposal form furnished by the City of Lodi.

Sealed proposals shall be delivered to the Purchasing Officer at the Lodi City Hall Annex, 212 West Pine Street, Lodi, CA 95240 (P.O. Box 3006, Lodi, CA 95241-1910) at or before

**11:00 a.m., Wednesday, November 26, 2003.**

At that date and hour said sealed proposals will be publicly opened and read in the Public Works Conference Room, City Hall, 221 West Pine Street, Lodi, California. Bidders or their authorized representatives are invited to be present.

The City of Lodi reserves the right to reject any or all bids, to waive any informality in any bid, to accept other than the lowest bid, or not to award the bid.

Reference is hereby made to said specifications for further details, which specifications and this notice shall be considered part of any contract made pursuant thereto.

CITY OF LODI  
Joel E. Harris  
Purchasing Officer

**POLE LINE MATERIAL  
FOR FIBER OPTIC SYSTEM**

**SECTION 2  
INFORMATION TO BIDDERS**

**SUBMISSION OF BIDS**

- A. The Purchasing Officer will receive sealed bids at the following address until

**11:00 a.m., Wednesday, November 26, 2003.**

- B. Bids shall be submitted under sealed cover, plainly marked "Proposal – Bid Opening, Pole Line Material for Fiber Optic System". Bids which are not properly identified may be disregarded. Bids which are not received by 11:00 a.m. Wednesday, **November 26, 2003**, will be returned to the bidder unopened.

Bids shall be submitted

To: Lodi City Council  
c/o Purchasing Officer

(If delivered by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If delivered by mail):  
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**PROPOSAL FORM**

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- B. The proposal must be signed with the full name and address of the bidder, by an authorized representative of the company.
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Bids may be rejected if they show any alteration of proposal form, additions not called for, or alternative bids not properly documented. Erasures or irregularities of any kind may also be cause for rejection.

**AWARD OF BID**

- A. The award of the bid, if it be awarded, will be to the lowest responsible bidder whose bid proposal complies with all the requirements herein described.
- B. In evaluating the bids and determining lowest responsible bidder and lowest cost to the City, the City will consider the Sales Tax Credit in the amount of one percent (1%) of the purchase price of the materials or equipment, when such purchase is consummated at the retailer's place of business and such business:
  - 1. Is located within the City of Lodi;
  - 2. Is licensed by the California State Board of Equalization to collect sales tax at the local place of business;
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- D. In case of tie bids, consideration will be given to bids as described in "Award of Bid", Paragraph B, above. If that section does not apply to resolution of the tie, the tie will be broken by a coin toss, conducted by the City Purchasing Officer. Tie bidders will be notified and may be present.

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All quotations submitted shall include 7.75% California Sales or Use Taxes, and all sales shall be subject to California Sales or Use Taxes in effect at the time of transaction.

**PAYMENTS**

- A. Invoices shall be submitted only for items and quantities ordered for release and delivery, and delivered subsequent to such order release, and shall indicate sales or use taxes as separate items apart from the cost F.O.B. point of delivery. Purchaser's item description and release number shall appear on all invoices. All invoices shall be rendered in duplicate.
- B. Full payment by the purchaser shall not release supplier of the responsibility to fully carry out all bid obligations nor be construed by supplier as acceptance of the work hereunder by purchaser.

**WARRANTY**

The pole line materials for the fiber optic system shall be free from defects. If any portion of a manufacturer's equipment is found to be defective, the manufacturer shall be responsible for the cost of repair or replacement of such equipment.



**POLE LINE MATERIAL  
FOR FIBER OPTIC SYSTEM**

**SECTION 3  
BID PROPOSAL**

**CITY OF LODI, CALIFORNIA**

Date: June 2003

To: The Lodi City Council  
c/o Purchasing Officer  
City Hall Annex

(If by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If by mail);  
P O Box 3006  
Lodi CA 95241-1910

From: \_\_\_\_\_  
( N a m e o f B i d d e r )

The undersigned, as bidder, declares to have carefully examined the Notice Inviting Bids, Information to Bidders, and Specifications filed for furnishing and delivering this material or equipment, and agrees to be fully informed regarding all of the conditions affecting the material or equipment to be furnished for the completion of the order, and further agrees that the information was secured by personal investigation and research and not from any estimate of a City employee, and that no claim will be made against the City by reason of estimates, tests or representations of any officer or agent of the City, and proposes and agrees if the proposal be accepted, to furnish the City of Lodi the necessary equipment or material specified in the bid in the manner and time therein set forth. It has been noted the City of Lodi reserves the right to accept all or part of this bid, to reject any or all bids, or to accept other than the lowest bid.

Material or equipment listed below is to be in accordance with the City of Lodi specifications attached hereto. The bidder will submit a detailed list of any and all exceptions taken to these specifications. In the absence of such a list, it will be understood that the bidder's proposal is based on strict conformance to the specifications in all respects. All exceptions taken will be evaluated, and a determination as to acceptability of the exception will be made by the City of Lodi before the award is made.

If awarded the bid, the undersigned agrees to design, furnish and deliver the material or equipment described in the specifications, and to take in full payment therefor the following unit and total prices, to-wit:

**POLE LINE MATERIAL  
FOR FIBER OPTIC SYSTEM**

**SECTION 3  
BID PROPOSAL**

<u>BID ITEMS</u>					
ITEM NO.	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE
1.	<b>Showshoes</b> ALCOA CAT #FOS18-AD-5256 PLP CAT #STO-4-N TYCO CAT #DFOS18-AD-100 MULTILINK CAT #2116-SSPSS	EA	<u>30</u>	\$ _____	\$ _____
2.	<b>Tangent Support Bracket</b> ALCOA CAT #ATG 826/875 PLP CAT #44009798 TYCO CAT #FOSC 6060PB	EA	<u>225</u>	\$ _____	\$ _____
3.	<b>Deadend Assembly</b> ALCOA CAT #ADELE 858048 C PLP CAT #2872007C1E1 W/5/8" EYE NUT TYCO CAT #AS02-FDEM 1590	EA	<u>125</u>	\$ _____	\$ _____
4.	<b>Suspension Assembly</b> ALCOA CAT #ASU 856/894 PLP CAT #6600003 TYCO CAT #ASO-1-FOS-5060-S	EA	<u>85</u>	\$ _____	\$ _____
5.	<b>Fiberglass Stand-off Bracket</b> TYCO CAT #FPBS-15-18 OR EQUAL	EA	<u>85</u>	\$ _____	\$ _____
SUB TOTAL					\$ _____
TAX 7.75%					\$ _____
TOTAL BID					\$ _____

**POLE LINE MATERIAL  
FOR FIBER OPTIC SYSTEM**

**SECTION 3  
BID PROPOSAL**

It is understood and agreed that if this Proposal is accepted, the prices quoted above are inclusive of sales or use taxes, or similar tax now imposed by Federal, State, or other governmental agency upon the material or equipment specified.

The undersigned has checked carefully all the above figures and understands that the City and its officers and employees will not be responsible for any errors or omissions on the part of the undersigned in completing this bid.

In any case where discrepancy in extensions may occur, the Bidder agrees that the unit price shall be taken as the correct figure.

The undersigned, as bidder, hereby declares that the only persons or firms interested in the proposal as principal or principals is or are named herein and that no other persons or firms than herein mentioned have any interest in this proposal, that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith, without collusion or fraud.

This bid may be withdrawn by the written request of an authorized representative of the bidding company at any time prior to the scheduled time for the opening of bids or prior to any authorized postponement thereof.

The undersigned hereby designates as the office to which such notice of acceptance may be mailed or delivered:

Name of Company: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

FAX Number: \_\_\_\_\_

Date: \_\_\_\_\_



Specifications  
GE JungleMUX OC-3  
SONET MULTIPLEXER

November 2003

**CITY OF LODI**  
**ELECTRIC UTILITY DEPARTMENT**

Book No. \_\_\_\_\_

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SECTION 4	SPECIFICATIONS .....	4.1

**GE JungleMUX OC-3  
SONET MULTIPLEXER**

**SECTION 1  
NOTICE INVITING BIDS**

CITY OF LODI, CALIFORNIA

The City of Lodi hereby invites sealed proposals to design, furnish and deliver four GE JungleMUX OC-3 Sonet Multiplexer units to the City of Lodi, California.

Each bid shall be in accordance with this notice and specifications on file and available from the Purchasing Officer, Lodi City Hall Annex, 212 West Pine Street, Lodi, California 95240, (209) 333-6777. No bid will be considered unless it is submitted on a proposal form furnished by the City of Lodi.

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CITY OF LODI  
Joel E. Harris  
Purchasing Officer

**SUBMISSION OF BIDS**

- A. The Purchasing Officer will receive sealed bids at the following address until  
  
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- B. Bids shall be submitted under sealed cover, plainly marked "Proposal – Bid Opening, GE JungleMUX OC-3 Sonet Multiplexer". Bids which are not properly identified may be disregarded. Bids which are not received by 11:00 a.m. Wednesday, **November 26, 2003**, will be returned to the bidder unopened.

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**AWARD OF BID**

- A. The award of the bid, if it be awarded, will be to the lowest responsible bidder whose bid proposal complies with all the requirements herein described.

- B. In evaluating the bids and determining lowest responsible bidder and lowest cost to the City, the City will consider the Sales Tax Credit in the amount of one percent (1%) of the purchase price of the materials or equipment, when such purchase is consummated at the retailer's place of business and such business:
1. Is located within the City of Lodi;
  2. Is licensed by the California State Board of Equalization to collect sales tax at the local place of business;
  3. Maintains a valid City of Lodi Business License.
- C. Where alternative bids are received, the City Council reserves the right to select the bid most advantageous to the City. The award, if made, will be made within sixty days after the opening of the bids.
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- B. Full payment by the purchaser shall not release supplier of the responsibility to fully carry out all bid obligations nor be construed by supplier as acceptance of the work hereunder by purchaser.

### **WARRANTY**

See Section 4-03 Warranty in these specifications.

### **PURCHASES**



Any transaction made pursuant to this bid and subsequent award shall be covered by City of Lodi Purchase Order, and all terms included in Notice to Bidders, Information to Bidders, Proposal, and Specifications, shall be binding.

**CITY OF LODI, CALIFORNIA**

Date: June 2003

To: The Lodi City Council  
c/o Purchasing Officer  
City Hall Annex

(If by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If by mail);  
P O Box 3006  
Lodi CA 95241-1910

From: \_\_\_\_\_  
( N a m e o f B i d d e r )

The undersigned, as bidder, declares to have carefully examined the Notice Inviting Bids, Information to Bidders, and Specifications filed for furnishing and delivering this material or equipment, and agrees to be fully informed regarding all of the conditions affecting the material or equipment to be furnished for the completion of the order, and further agrees that the information was secured by personal investigation and research and not from any estimate of a City employee, and that no claim will be made against the City by reason of estimates, tests or representations of any officer or agent of the City, and proposes and agrees if the proposal be accepted, to furnish the City of Lodi the necessary equipment or material specified in the bid in the manner and time therein set forth. It has been noted the City of Lodi reserves the right to accept all or part of this bid, to reject any or all bids, or to accept other than the lowest bid.

Material or equipment listed below is to be in accordance with the City of Lodi specifications attached hereto. The bidder will submit a detailed list of any and all exceptions taken to these specifications. In the absence of such a list, it will be understood that the bidder's proposal is based on strict conformance to the specifications in all respects. All exceptions taken will be evaluated, and a determination as to acceptability of the exception will be made by the City of Lodi before the award is made.

If awarded the bid, the undersigned agrees to design, furnish and deliver the material or equipment described in the specifications, and to take in full payment therefor the following unit and total prices, to-wit:

DESCRIPTION	UNIT PRICE
GE JungleMUX OC-3 Sonet Multiplexer, Common Equipment including training.	
<hr/>	\$ <hr/>
<i>(Unit Price Written in Words)</i>	
<b>TOTAL</b>	\$ <hr/>
<b>SALES TAX 7.75%</b>	\$ <hr/>
<b>TOTAL AMOUNT, FOB LODI</b>	\$ <hr/>

Manufacturer: 

---

Warranty: 

---

 Year(s)

Delivery: 

---

 Weeks

Exceptions to Specifications: ☐ None ☐ Yes, detailed on  
attached documents

User References: ☐ Attached ☐ None

It is understood and agreed that if this Proposal is accepted, the prices quoted above are inclusive of sales or use taxes, or similar tax now imposed by Federal, State, or other governmental agency upon the material or equipment specified.

The undersigned has checked carefully all the above figures and understands that the City and its officers and employees will not be responsible for any errors or omissions on the part of the undersigned in completing this bid.

In any case where discrepancy in extensions may occur, the Bidder agrees that the unit price shall be taken as the correct figure.

The undersigned, as bidder, hereby declares that the only persons or firms interested in the proposal as principal or principals is or are named herein and that no other persons or firms than herein mentioned have any interest in this proposal, that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith, without collusion or fraud.

This bid may be withdrawn by the written request of an authorized representative of the bidding company at any time prior to the scheduled time for the opening of bids or prior to any authorized postponement thereof.

The undersigned hereby designates as the office to which such notice of acceptance may be mailed or delivered:

Name of Company:	_____
Address:	_____
City, State, ZIP	_____
Authorized Signature:	_____
Name:	_____
Title:	_____
Telephone No.:	_____
FAX Number:	_____
Date:	_____

#### **4-01 SCOPE**

The optical network consists of four (4) General Electric Multilin, Inc. (GEM) JungleMUX OC-3 SONET multiplexer units, one for each node. One of the nodes will be in the Central Office, normally known as the Headend node and the other three will be typical remote nodes for substations. Each remote node consists of one 10/100M Ethernet (protected) circuit for LAN; one V-40 Mapper with one Video I/O card for encoding camera images (up to three cameras per Video I/O card); one 2-wire telephone (FXS) circuit; one 4-wire voice circuit for mobile and one RS-232 LS Data circuit. At the Headend node, there shall be one 10/100M Ethernet (protected) circuit for LAN; one V-4 Mapper with three Video I/O cards for the three remotes (one to one configuration); three 2-wire FXO cards for the three remote PBX telephone circuits; three 4-wire voice and three RS-232 LS Data cards. In addition, four fiber patch cords of 5 meters length are provided for connecting the redundant JungleMUX optical transceiver cards' Ins & Outs to the fiber patch panel. The system will be controlled using JNCI Network Management System (NMS) II software (J-Config & J-Channel). The system network shall have the capability of being remotely monitored down to DS-0 level and shall be password protected.

The Cameleon Camera Control System, application software license plus computer Quad card and serial converter com port card shall be included in the purchase. The City will provide the PC hardware.

All nodes will have two chassis, one is the basic Common chassis, which is 4\* RU (7 inches) high on an EIA 19-inch rack. The second chassis, the Expansion Channel shelf, is 2\* RU (3-1/2 inches) and is used for housing more drop interfaces as the system expands. It will include a blank space panel (1\* RU 1-3/4 inch high) between the Common shelf and the expansion shelf. The panel shall be included in the purchase. The purpose of the panel is to provide some physical space at the rear of the shelves for wiring high count of VF circuits. The total mounting height for both chassis plus the Blank Space panel will be 7\* RU.

#### **4-02 EQUIPMENT**

The following equipment including software shall be provided:

**Central Office (Headend) OC-3** – e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable, see detailed equipment list. The voltage source shall be 48 Vdc.

**Sub-Station #1 OC-3 node** – e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable, see detailed equipment list. The voltage source shall be 48 Vdc.

**Sub-Station #2 OC-3 node** - e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable, see detailed equipment list. The voltage source shall be 125 Vdc.

**Sub-Station #3 OC-3 node** - e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable, see detailed equipment list. The voltage source shall be 125 Vdc.

**Cameleon Camera Control System** – Standalone Application Software, Quad-1 card for monitor per attached detail equipment list (exclude PC Computer hardware and PC Monitors).

**4-03 WARRANTY**

The manufacturer warrants all equipment to be free from defects in material, workmanship and title, under normal use and service. The warranty shall apply for twenty-four (24) months. The warranty period doesn't commence until all equipment has been received by the City. The equipment shall be tested upon receipt from the City. If any equipment fails during the warranty period, the manufacturer shall be responsible to repair or replace any and all defective parts or equipment. The method will be as follows:

- a) The Manufacturer shall make available any necessary parts or equipment needed to make repairs that can be installed by the City personnel.
- b) If repairs cannot be accomplished at City facilities, the Manufacturer shall pay all costs of transportation to and from their manufacturing facilities. If a long lead-time is anticipated for the replacement or repair, then back-up equipment will be provided by the Manufacturer. The cost of shipping will be the responsibility of the Manufacturer.

**4-05 PRODUCT TRAINING**

Training for six (6) students will be included in this bid. The training class will be four (4) days in length. The first 3.5 days will be on the operation of the JungleMUX. The remaining class time will be spent on the Cameleon™ Camera System. The operation and configuration of common equipment and interface units relevant to the City's system will be covered. If the City's equipment is not available for use, GE will supply all of the pertinent equipment for the class.

## **86400-OC-3 Jungle MUX SONET Multiplex Equipment**

**Central Office (Headend) OC-3** – e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable per attached detailed equipment list.

**Sub-Station #1 OC-3 node** – e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable per attached detailed equipment list.

**Sub-Station #2 OC-3 node** - e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable per attached detailed equipment list.

**Sub-Station #3 OC-3 node** - e/w 1310 nm Optics, 10Base T Ethernet, V-40 Mapper & Video I/O cards; 2-wire FXO Tel; 4-wire Voice; RS-232 LS Data card & FC-ST 5m. fiber patch cable per attached detailed equipment list.

**Cameleon Camera Control System**– Standalone Application Software, Quad-1 card for monitor per attached detail equipment list (Exclude PC Computer hardware and PC Monitors).

NO.	PRODUCT DESCRIPTION	ITEM CODE	HEAD END	SUB #1 QTY	SUB #2 QTY	SUB #3 QTY	MISC. QTY	TOTAL QTY
1.	<b>COMMON EQUIPMENT</b>							
	COMM EQUIPMENT SHELF	86430-01	1	1	1	1		4
	JMUX CHANNEL SHELF	86430-02	1	1	1	1		4
	<b><u>VDC POWER</u></b>							
	POWER CONVERTER 130V	86431-03	4	4	4	4		16
	POWER UNIT PADDLE BOARD	86431-90	4	4	4	4		16
	<b><u>SERVICE UNIT</u></b>							
	SERVICE UNIT	86434-02	1	1	1	1		4
2.	<b>JMUX INTERFACE</b>							
	<b><u>OC-3 INTERFACE</u></b> OC-3 JMUX, 1300NM Laser	86432-01	2	2	2	2		8
3.	<b>VT LEVEL INTERFACE</b>							
	<b><u>DS-0 DEMUX</u></b>							
	JIF-SHARE UNIT	86485-01	2	2	2	2		8
	JIF-SHARE PADDLEBOARD	86485-90	1	1	1	1		4
	<b><u>10 Base T</u></b>							
	ETHERNET BRIDGE UNIT	86438-01	2	2	2	2		8
	ETHERNET HUBBING PADDLEBOARD	86438-98	1	1	1	1		4
	with 2x RJ-45 & AU							
	<b><u>VIDEO MAPPER</u></b>							
	VMAPPER-40 UNIT	86410-01	1	1	1	1		4
	VMAPPER-40 NEW PB w/4 VPORTS (2 SLOT)	86410-96	1	1	1	1		4
	SPE PORT CABLE (48 in)	035-86430-71	2	2	2	2		8
	<b><u>VIDEO 1/0</u></b>							
	VIDEO 1/0 UNIT w/AUDIO	86412-02	3	1	1	1		6
	VIDEO 1/0 SUB-BOARD-1 xrs485/422	86412/D	3	1	1	1		6
	VIDEO 1/0 PB (2 SLOT)	86412-96	3	1	1	1		6
	RJ-45 STRAIGHT CABLE, UNSHIELDED (BLACK) (12in)	135-86411-01	3	1	1	1		6
4.	<b>DS-0 INTERFACE</b>							
	<b><u>4W VF</u></b>							
	4W-VF S/CH E&M TYPE 1-5 W/BRDG	86444-06	3	1	1	1		6
	2W/4W-VF PADDLE BOARD	86444-90	3	1	1	1		6
	<b><u>2W VF</u></b>							
	2W-VF UNIT FXO	86445-41	3					3
	2W VF FXS/FXO PADDLE BOARD	86445-91	3	1	1	1		6
	<b><u>DATA INTERFACE</u></b>							
5.	<b>DOCUMENTATION</b>							
	TPIM – JMUX, TN-1Ue FULL MANUAL (CD)	86451-03	1	1	1	1		4
6.	<b>CABLING KIT / ACCESSORIES</b>							
	OC-3 J-MUX RIBBON CABLE KIT	86430-51	1	1	1	1		4
	VT/DSO RIBBON CABLE KIT	86430-52	1	1	1	1		4
	COMPUTER / TEST CABLE KIT	86430-53	1	1	1	1		4
	1 RU SPACER PANEL	P0885997	1	1	1	1		4
7.	<b>OPTICAL PATCH CORDS (OEM)</b>							
	<b><u>FC/ST/SC CONNECTOR</u></b> SM OPT PATCH CORD, (FC-ST, 5M)	690-00725	4	4	4	4		16
8.	<b>RTU LICENSE</b>							
	JCI RTU LICENSE	86452-02	1	1	1	1		4
	JNCI RTU LICENSE	86453-01	1					1
	JNCI NMS-II JCONFIG RTU LICENCE	86453-02	1	1	1	1		4
	JNCI NMS-II JCHANNEL RTU LICENCE	86453-03	1	1	1	1		4
9.	<b>SERVICES</b>							
	SYSTEM WIRE AND TEST LABOR-BASIC 4HRS/TERM	86400-STA1	1	1	1	1		4
	ORDER ENGINEERING - FACTORY	OE	1	1	1	1		4
10.	<b>OEM – CAMERA CAMELEON</b>							
	CAMELEON SOFTWARE (STANDALONE VERSION)	SAGE					1	1
	BELKIN VIDEOBUS CABLE	F5U206					1	1
	PCMCIA RS-232 COM PORT (PTZ)	PCMCIA-232					1	1





Specifications  
ALL DIELECTRIC  
SELF SUPPORTING AERIAL CABLE

November 2003

**CITY OF LODI**  
**ELECTRIC UTILITY DEPARTMENT**

Book No. \_\_\_\_\_

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**ALL DIELECTRIC  
SELF SUPPORTING AERIAL CABLE (ADSS)**

**SECTION 1  
NOTICE INVITING BIDS**

CITY OF LODI, CALIFORNIA

The City of Lodi hereby invites sealed proposals to design, furnish and deliver various lengths of all dielectric self supporting fiber optic cable (ADSS) to the City of Lodi, California.

Each bid shall be in accordance with this notice and specifications on file and available from the Purchasing Officer, Lodi City Hall Annex, 212 West Pine Street, Lodi, California 95240, (209) 333-6777. No bid will be considered unless it is submitted on a proposal form furnished by the City of Lodi.

Sealed proposals shall be delivered to the Purchasing Officer at the Lodi City Hall Annex, 212 West Pine Street, Lodi, CA 95240 (P.O. Box 3006, Lodi, CA 95241-1910) at or before

**11:00 a.m., Wednesday, November 26, 2003.**

At that date and hour said sealed proposals will be publicly opened and read in the Public Works Conference Room, City Hall, 221 West Pine Street, Lodi, California. Bidders or their authorized representatives are invited to be present.

The City of Lodi reserves the right to reject any or all bids, to waive any informality in any bid, to accept other than the lowest bid, or not to award the bid.

Reference is hereby made to said specifications for further details, which specifications and this notice shall be considered part of any contract made pursuant thereto.

CITY OF LODI  
Joel E. Harris  
Purchasing Officer

**SUBMISSION OF BIDS**

- A. The Purchasing Officer will receive sealed bids at the following address until

**11:00 a.m., November 26, 2003**

- B. Bids shall be submitted under sealed cover, plainly marked "Proposal – Bid Opening, All Dielectric Self Supporting Aerial Cable". Bids which are not properly identified may be disregarded. Bids which are not received by 11:00 a.m. Wednesday, **November 26, 2003**, will be returned to the bidder unopened.

Bids shall be submitted

To: Lodi City Council  
c/o Purchasing Officer

(If delivered by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If delivered by mail):  
P O Box 3006  
Lodi CA 95241-1910

**BID OPENING**

- A. At 11:00 a.m., Wednesday, **November 26, 2003**, or as soon as possible thereafter, in the Public Works Conference Room, City Hall, 221 West Pine Street, Lodi, California, bids will be publicly opened and read. Bidders or their authorized representatives are invited to be present.

**PROPOSAL FORM**

- A. Prospective bidders are furnished with one proposal form included with the specifications.
- B. The proposal must be signed with the full name and address of the bidder, by an authorized representative of the company.
- C. The City of Lodi (hereinafter "City") reserves the right to accept other than the lowest bid, or to reject any or all bids.

**REJECTION OF PROPOSALS**

Bids may be rejected if they show any alteration of proposal form, additions not called for, or alternative bids not properly documented. Erasures or irregularities of any kind may also be cause for rejection.

**AWARD OF BID**

- A. The award of the bid, if it be awarded, will be to the lowest responsible bidder whose bid proposal complies with all the requirements herein described.

- B. In evaluating the bids and determining lowest responsible bidder and lowest cost to the City, the City will consider the Sales Tax Credit in the amount of one percent (1%) of the purchase price of the materials or equipment, when such purchase is consummated at the retailer's place of business and such business:
1. Is located within the City of Lodi;
  2. Is licensed by the California State Board of Equalization to collect sales tax at the local place of business;
  3. Maintains a valid City of Lodi Business License.
- C. Where alternative bids are received, the City Council reserves the right to select the bid most advantageous to the City. The award, if made, will be made within sixty days after the opening of the bids.
- D. In case of tie bids, consideration will be given to bids as described in "Award of Bid", Paragraph B, above. If that section does not apply to resolution of the tie, the tie will be broken by a coin toss, conducted by the City Purchasing Officer. Tie bidders will be notified and may be present.

### **PRICES**

All quoted prices shall be current and firm for at least ninety days after date of bid opening. Prices to be F.O.B. delivered to Electric Utility Department, 1331 South Ham Lane, Lodi, California 95242.

### **SALES AND USE TAXES**

All quotations submitted shall include 7.75% California Sales or Use Taxes, and all sales shall be subject to California Sales or Use Taxes in effect at the time of transaction.

### **PAYMENTS**

- A. Invoices shall be submitted only for items and quantities ordered for release and delivery, and delivered subsequent to such order release, and shall indicate sales or use taxes as separate items apart from the cost F.O.B. point of delivery. Purchaser's item description and release number shall appear on all invoices. All invoices shall be rendered in duplicate.
- B. Full payment by the purchaser shall not release supplier of the responsibility to fully carry out all bid obligations nor be construed by supplier as acceptance of the work hereunder by purchaser.

### **WARRANTY**

See Section 4-08 Warranty in these specifications.

**ALL DIELECTRIC  
SELF SUPPORTING AERIAL CABLE (ADSS)**

**SECTION 2  
INFORMATION TO BIDDERS**

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**PURCHASES**

Any transaction made pursuant to this bid and subsequent award shall be covered by City of Lodi Purchase Order, and all terms included in Notice to Bidders, Information to Bidders, Proposal, and Specifications, shall be binding.

**ALL DIELECTRIC  
SELF SUPPORTING AERIAL CABLE (ADSS)**

**SECTION 3  
BID PROPOSAL**

**CITY OF LODI, CALIFORNIA**

Date: June 2003

To: The Lodi City Council  
c/o Purchasing Officer  
City Hall Annex

(If by FedEx, UPS, or courier):  
212 West Pine Street  
Lodi CA 95240

(If by mail);  
P O Box 3006  
Lodi CA 95241-1910

From: \_\_\_\_\_  
( N a m e o f B i d d e r )

The undersigned, as bidder, declares to have carefully examined the Notice Inviting Bids, Information to Bidders, and Specifications filed for furnishing and delivering this material or equipment, and agrees to be fully informed regarding all of the conditions affecting the material or equipment to be furnished for the completion of the order, and further agrees that the information was secured by personal investigation and research and not from any estimate of a City employee, and that no claim will be made against the City by reason of estimates, tests or representations of any officer or agent of the City, and proposes and agrees if the proposal be accepted, to furnish the City of Lodi the necessary equipment or material specified in the bid in the manner and time therein set forth. It has been noted the City of Lodi reserves the right to accept all or part of this bid, to reject any or all bids, or to accept other than the lowest bid.

Material or equipment listed below is to be in accordance with the City of Lodi specifications attached hereto. The bidder will submit a detailed list of any and all exceptions taken to these specifications. In the absence of such a list, it will be understood that the bidder's proposal is based on strict conformance to the specifications in all respects. All exceptions taken will be evaluated, and a determination as to acceptability of the exception will be made by the City of Lodi before the award is made.

If awarded the bid, the undersigned agrees to design, furnish and deliver the material or equipment described in the specifications, and to take in full payment therefor the following unit and total prices, to-wit:

**ALL DIELECTRIC  
SELF SUPPORTING AERIAL CABLE (ADSS)**

**SECTION 3  
BID PROPOSAL**

QUANTITY	DESCRIPTION	UNIT PRICE
Lump Sum	All Dielectric Self Supporting Aerial Cable	
	<hr/> <i>(Unit Price Written in Words)</i>	\$ <hr/>
	<b>TOTAL</b>	\$ <hr/>
	<b>SALES TAX 7.75%</b>	\$ <hr/>
	<b>TOTAL AMOUNT, FOB LODI</b> (Reel Lengths Must Be As Stated)	\$ <hr/>

Manufacturer: 

---

Warranty: 

---

 Year(s)

Delivery: 

---

 Weeks

Exceptions to Specifications: ☐ None ☐ Yes, detailed on  
attached documents

User References: ☐ Attached ☐ None



It is understood and agreed that if this Proposal is accepted, the prices quoted above are inclusive of sales or use taxes, or similar tax now imposed by Federal, State, or other governmental agency upon the material or equipment specified.

The undersigned has checked carefully all the above figures and understands that the City and its officers and employees will not be responsible for any errors or omissions on the part of the undersigned in completing this bid.

In any case where discrepancy in extensions may occur, the Bidder agrees that the unit price shall be taken as the correct figure.

The undersigned, as bidder, hereby declares that the only persons or firms interested in the proposal as principal or principals is or are named herein and that no other persons or firms than herein mentioned have any interest in this proposal, that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith, without collusion or fraud.

This bid may be withdrawn by the written request of an authorized representative of the bidding company at any time prior to the scheduled time for the opening of bids or prior to any authorized postponement thereof.

The undersigned hereby designates as the office to which such notice of acceptance may be mailed or delivered:

Name of Company: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

FAX Number: \_\_\_\_\_

Date: \_\_\_\_\_

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#### **4-01 SCOPE**

The scope of these specifications describes, for the bidder, the City's requirements of the self-supporting, all dielectric fiber optic cable (ADSS). The bidder shall, with this proposal, indicate any and all deviations from the requirements of this specification. The Project Engineer will review any discrepancies for a determination as to their equivalency of that intended purpose.

#### **4-02 GENERAL SYSTEM DESCRIPTION**

This specification requires the successful bidder to furnish various lengths of an all dielectric, self-supporting cable (ADSS) (as outlined in these requirements) designed for aerial installation on wood and/or steel electrical transmission poles / towers (max span length of 400 feet per California G.O. 95 "Light Loading"). The cable shall contain single mode fibers, it shall be round and constructed according to the loose tube concept. The cable shall utilize non-formed wire ADSS cable hardware for installation. No cables shall be considered that require special potting compounds for dead-ends or cables with a non-integral Kevlar messenger or cables using FRP as its only strength member. The fiber count is as specified in this document.

#### **4-03 SUPPLIER'S SPECIFIC REQUIREMENTS**

The successful bidder shall have five years minimum experience in manufacturing and installed at least 10,000 km of ADSS cable from the manufacturing facility to provide the cable. The bidder will be responsible for all phases of manufacturing, packaging and the safe keeping of the fiber optic cable while at the successful bidder's factory and in transit to the City. Prior to shipping, the supplier shall test each fiber to verify that both the user and the glass fiber manufacturer's specifications are met. Each of the fibers in each of the cable reels shall be completely tested with an Optical Time Domain Reflectometer (OTDR) at 1310 nm -1550 nm, and 850 nm-1300 nm on an end-to-end basis and final test data attached to each reel. In addition the successful bidder shall optically test the cable once it has arrived at the City of Lodi to prove it meets this specification and was not damaged during shipment. A copy of the test data (factory testing and testing at City of Lodi) shall be sent to the Project Engineer. The documentation shall be on paper as well as a 3.5" floppy diskette.

#### **4-04 FIBER OPTIC CABLE REQUIREMENTS**

**4-04.01 Scope** It is the intent of this section to set forth the City's desired construction details and minimum requirements for the single mode, self-supporting, all-dielectric, telecommunications grade, fiber optic cable. Bidders shall furnish with their bids a detailed description of the cable that is proposed. The information required on the cable shall be; the glass manufacturer, cable configuration, fiber grade, optical characteristics, mechanical specifications, sag and tension information, and all other pertinent information required for an accurate evaluation.

**4-04.02 Fiber Optic Cable Construction Parameters** The cable shall be a telecommunications cable, all-dielectric, self-supporting optical cable (ADSS) designed for the high-speed transmission of voice, data, and video communications. The cable shall combine a loose tube fiber with an ultraviolet rated outer jacket and be designed for aerial installations or high strength duct installations. The following are the City's minimum requirements and features for the fiber cable:

- a) **Optical Fiber:** Each optical fiber shall be a single mode, glass fiber with a protective outer coating. No fiber splices are to be allowed in a continuous length of cable.
- b) **Buffer Requirements:** The cable provided shall incorporate loose buffer tubes; each tube shall have exactly 12 fibers per buffer tube. It is acceptable to put a maximum of 5 empty buffer tubes in the cable. No other fiber count will be accepted.

The buffer tubes that contain fiber shall be filled with a viscous non-hardening gel compound to prevent the ingress of moisture to the fibers. The compound shall act as a lubricant to permit the fibers to “float” inside the buffer tube with out causing any stress on the fibers.

The filling compound shall be non-hardening, non-toxic, non-hygroscopic, non-nutrient to fungus and electrically non-conducting. These buffer tubes shall be stranded around a dielectric member. The fibers shall be applied loosely inside each buffer tube. The cable core shall also be water blocked by using either a dry water blocking binder or a water-blocking compound.

- c) Core Tape: A layer of non-hygroscopic tape shall be wrapped around the stranded buffer tubes, making a complete core unit. The tape shall act as a heat barrier to prevent deformation of and adhesion between the buffer tubes and the inner polyethylene jacket.
- d) Aramid Strength Members: The strength of the cable shall be obtained by layers of aramid yarn. The aramid yarn shall be counter-helically applied in several layers over the core and then wrapped in a polyester tape to insure no adhesion to the outer jacket. It shall provide the mechanical strength required to support the cable and provide cushioning against crushing. The aramid yarn must be decoupled from the outer jacket.
- e) Outer Jacket: The outer cable jacket shall be composed of a layer of medium density polyethylene (MDPE) to ensure correct load transfer from the dead end hardware to the cable. This jacket shall resist deterioration from ultraviolet rays, temperature variations, and other environmental conditions including abuse during installation. The jacket shall not promote the growth of fungus and shall be free of holes, cracks, blisters or other imperfections. In addition, this jacket shall be non-conducting and suitable for installation on poles supporting transmission lines with voltages up to 115 kV. The outer jacket shall contain a highly visible ripcord for easy cable entry.
- f) Cable Marking: The cable jacket shall be imprinted with the manufacturer’s name, manufacturing date, description of cable, and sequential length marks. In addition, this cable shall be marked “LED” in white letters at the same frequency as all other cable marks. The length marks shall be in feet. The maximum distance between cable length marks shall be 5 feet.
- g) Fiber Trace-ability: Each fiber shall be traceable back to the original fiber manufacturer’s fiber number and parameters of the fiber.
- h) Fiber Identification: Each fiber, in a tube shall be distinguishable from the other by means of color-coding as described in EIA/TIA – 598. Each buffer tube shall be distinguishable from the others by means of color-coding. Color-coding means that each fiber within a tube and each tube shall be of a totally different color from the others.

**4-04.03 Cable Mechanical Requirements** The following mechanical parameters are the City's minimum requirements. Bidders shall include with their proposals, detailed specifications addressing each of the parameters listed in this section.

- a) Span Length: The cable provided shall be designed for “Light Load” aerial installations on transmission structures, with a maximum span length of 400 feet.

- b) Tensile Strength: The fiber optic cable shall be designed for a maximum span of 400 feet for California Light Loading, G.O. 95 at 1% sag.
- c) Crush Resistance: The cable sample shall withstand a compressive load of 125 pounds per square inch with no degradation to fibers in accordance with EIA/TIA Standard FOTP – 41.
- d) Impact Resistance: The cable sample shall withstand the impact test described in EIA/TIA Standard FOTP-25. Average increase in fiber attenuation shall be less than or equal to 0.20 dB for the fibers after 25 impacts. The attenuation on any single fiber shall not exceed twice the average attenuation of all fibers. If the cable jacket splits or cracks, the cable will have failed this test.
- e) Minimum Bend Radius of Cable: Minimum Bend Radius at No Load is 10 x Cable diameter. Minimum Bend Radius at Maximum Stringing Tension is 20 x Cable diameter + 2 inches.
- f) Temperature Requirements:  
Storage temperature: - 50°C to +70°C  
Installation temperature: -40°C to +70°C  
Operating temperature: -30°C to +65°C
- g) High and Low Temperature Bend: After four turns, each turn no greater than 20 times the cable diameter, the average increase in fiber attenuation shall be no greater than 0.20 dB. Maximum attenuation for any single fiber shall not be greater than twice the average attenuation. Cable jacket cracking or splitting shall be interpreted as a failure of the test.

This test shall be conducted in conformance with EIA/TIA Standard FOTP-37. The cable samples shall be conditioned for a least four hours at temperatures of –35 degrees and +65 degrees Celsius.

- h) Temperature Cycling and Aging: Temperature cycling test will be conducted in conformance with EIA/TIA Standard FOTP-3. The average increase in attenuation for aging shall not be greater than 0.2 dB/km. At temperatures extremes the loss shall be less than 0.1 dB/km.
- i) Lightening Damage: The cable shall be designed to resist electrical stress caused by faults on adjacent lines or lightening strikes. In addition the cable shall be resistant to tracking when installed within four feet of 12 kV distribution lines.
- j) Cyclic Flexing: The cable sample shall withstand at least 25 cycles of flexing without increasing attenuation of the fibers by more than 0.1 dB. Any cracking or splitting of the cable jacket shall be deemed a failure of the test. This test shall be conducted in accordance with EIA/TIA Standard FOTP-104.
- k) Cable Twist: The cable sample shall be subjected to at least 10 cycles of twists. The cable sample shall be no longer than 6 feet. Any cracking or splitting of the cable jacket shall be deemed a failure of the test. This test shall be conducted in accordance with EIA/TIA Standard FOTP-85.
- l) Water Penetration: When three feet head of water is applied to one end of a three-foot sample of cable, no water shall leak out through the open end. This test shall be performed in accordance with EIA/TIA Standard FOTP-82.

- m) Filling Compound: The filling compounds shall not drip or leak from the cable sample. This test shall be performed in accordance with EIA/TIA Standard FOTP-81.
- n) Vibration – High Frequency: The cable shall be tested for vibration (100 Million cycles) in conformance with IEEE P1222. After this test there shall be no mechanical damage to the cable or hardware.
- o) Vibration – Low Frequency (Galloping): This cable shall be tested for vibration (100,000 cycles) in conformance with IEEE P1222. After this test there shall be no mechanical damage to the cable or hardware.

**4-04.04 Glass Fiber Requirements** The following fiber parameters are the City's minimum requirements. Bidders shall include with their proposals, detailed specifications addressing each of the parameters listed in this section.

- a) Fiber type: The optical cable shall be furnished with single-mode, glass fibers. The glass fibers shall be manufactured by either Corning Incorporated, Alcatel, Fujikura or OFS. The cable shall be manufactured in one continuous run. No others will be accepted.
- b) Fiber count and physical properties:  
Fiber Counts: 144 single mode fibers  
Nominal cable diameter: 0.610"  
Nominal cable weight: 127-lbs/1000 ft  
Cable breaking strength: 3970 lbs  
Cladding Diameter: 125 plus or minus 1 micron  
Protective Coating: 250 plus or minus 15 microns
- c) Nominal Fiber Performance:  
Max. Attenuation at 1310 nm: 0.4 dB/km  
Max. Attenuation at 1550 nm: 0.3 dB/km  
Chromatic dispersion  
    from 1285 to 1330 nm: = 3.5 ps/nm•km  
    from 1500 to 1550 nm: = 18.0 ps/nm•km  
Numerical Aperture: 0.13 plus or minus .01  
Fiber Non-circularity: Less or equal to 1%  
Point Discontinuity: Less or equal to 0.10 dB  
Mode Field Diameter 1310nm: 9.3 microns plus or minus .5 microns  
Mode Field Diameter 1550 nm: 10.5 plus or minus 1 micron  
Cable Cutoff Wavelength: less than 1260 nm

**4-04.05 Test Samples and Documentation** All testing as required by this specification shall be documented in a certified report. Prior to the cable being shipped, two copies of this report will be sent to the City's Project Engineer. In addition, two 24-inch cable samples will be sent. After the City's Project Engineer has reviewed and approved both the samples and the test reports, the Project Engineer will send written authorization to the manufacturer to ship the cable. The manufacturer will not ship the cable until this written authorization is received.

- a) Fiber Optical Tests: The manufacturer will test each fiber in every reel to verify conformance with all the requirements listed under Section 4 "Glass Fiber Requirements" as well as the manufacturer's own requirements and specifications. Fibers will be tested at both the 1310 nm and 1550 nm windows using an Optical Time Domain Reflectometer (OTDR). This testing will be done on a bi-directional averaged

basis. Each reel's test results will be attached to the respective reel and protected from water damage. These tests will be conducted after cable is on the reels and ready to ship.

After receipt of delivery of the cable at the City's site, the cable supplier shall test the cable to confirm damage has not occurred during shipment. The tests shall consist of optical tests which verify each fiber with an Optical Time Domain Reflectometer (OTDR) for attenuation in both 1310 nm and 1550 nm optical wavelength. For City acceptance of the cable, the customer site test values must be less than or equal to +0.05 dB of the factory site test values.

- b) Mechanical Tests: The manufacturer will provide documentation to show that the cable meets all requirements listed under Section 3 "Cable Mechanical Requirements" as well as the manufacturer's own requirements and specifications.
- c) Testing Costs: All costs associated with the required testing shall be incorporated in the bid price of the cable.

**4-04.06 Installation Information** The manufacturer shall provide the City all the required information for installing the cable on the City's transmission line structures. The information shall include but not be limited to the following: stringing tensions, required sags based upon span lengths from 100' to 400', recommended operating tensions, required equipment and detailed instructions and precautions to be observed during installation. The manufacturer shall provide final sag and tension charts for temperature ranges from 25 degrees Fahrenheit to 115 degrees Fahrenheit.

**4-04.07 Reel Requirements** Cable shall be shipped on wooden non-returnable reels designed to prevent cable damage during shipment and installation. These reels will have steel-reinforced arbor holes.

- a) Identification Tag: Each reel shall contain an identification tag protected from water damage, and securely attached to the reel. This tag shall contain the following information:
  - 1. City of Lodi Purchase Order Number
  - 2. Date of Manufacture
  - 3. Date Shipped
  - 4. Reel Number
  - 5. Manufacturer Cable Number
  - 6. Fiber Count
  - 7. Length (feet)
  - 8. Beginning and Ending Sequential Length Markings
  - 9. Gross Weight
  - 10. Net Weight
  - 11. Inspected By Signature & Date
  - 12. Comments
- b) Reel Dimensions: The reel flange diameter shall be a maximum of six feet in diameter. The diameter of the reel drum shall be at least 30 times the diameter of the cable.
- c) Reel Packaging: Each reel shall be covered in such a manner so as to prevent water from collecting on the cable. In addition, the cover shall also prevent solar damage to the cable. The cable ends shall be sealed and protected against ingress from moisture. The reel packages will be designed for outside storage.

- d) Direction of Roll: Each reel shall be marked so as to indicate the direction it should be rolled in order to prevent loosening of the cable.
- e) Reel Length: The fiber optic cable shall be shipped in the following reel lengths:
  - Reel # 1: 19,000 feet
  - Reel # 2: 6,500 feet
  - Reel # 3: 17,500 feet
  - Reel # 4: 22,000 feet
  - Reel # 5: 7,500 feetNo other footage quantities will be accepted.

#### **4-05 PROJECT ENGINEER**

The Project Engineer for this contract shall be Gary Mai, 1331 S. Ham Lane, Lodi, Ca, 95242. Please contact the Project Engineer for any technical questions at phone # 209 / 333-6800 ext 2024.

#### **4-06 SHIPPING REQUIREMENTS**

The cable shall be shipped to the Electric Utility Department, 1331 South Ham Lane, Lodi, CA 95242. The ends of the cable shall be sealed in order to prevent the ingress of moisture. The fiber optic cable reels shall be designed for outdoor storage. Delivery of cable is required within eight (8) weeks of receipt of notice to proceed. The delivery time excludes the City's Test/Cable review period time and notification to supplier to ship cable.

#### **4-07 ON SITE INSTALLATION SUPPORT**

The cable supplier shall provide on-site installation support to train crews on the proper methods of cable handling and installation. Installation support personnel shall have experience in all aspects of ADSS cable installation. The training shall be scheduled and coordinate with the Construction/Maintenance Supervisor. The training period shall be at least four (4) days and consist of the following:

- a) Two (2) days of classroom and equipment operation.
- b) Two (2) days of in field training on hardware, roller and rope installation and oversee first fiber pull.

#### **4-08 WARRANTY**

The fiber optic cable shall be free from defects. If any portion of a manufacturer's cable is found to be defective within three years of delivery, the manufacturer shall be responsible for the cost of repair or replacement of such cable. If, during this minimum three-year warranty, more than three defects, spaced at least 100 feet apart, are found within one reel length, the manufacturer shall replace the entire reel length F.O.B., Destination at the manufacturer's cost.



RESOLUTION NO. 2003-201

A RESOLUTION OF THE LODI CITY COUNCIL APPROVING SPECIFICATIONS AND AUTHORIZING ADVERTISEMENT FOR BIDS FOR 72,500 FEET OF ADSS FIBER OPTIC CABLE, POLE LINE HARDWARE, FIBER OPTIC TEST AND SPLICING EQUIPMENT, AND GE OC-3 JUNGLEMUX MULTIPLEXER EQUIPMENT; AND FURTHER APPROPRIATE FUNDS FOR ENGINEERING, SPECIALIZED FIBER OPTIC TRAINING, AND SUBSTATION AND OVERHEAD CONSTRUCTION WORK ASSOCIATED WITH THIS PROJECT

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WHEREAS, at the October 21, 2003, Shirtsleeve session, staff presented to the City Council the proposed Fiber Optic Network Project, which will provide for a high-speed communication Sonet OC-3 Fiber Optic System for Supervisory Control and Data Acquisition (SCADA), telephone, and video security for the City's electrical substations; and

WHEREAS, the system will be built by City staff utilizing the existing 60kV route between each of the City's electrical substations; and

WHEREAS, staff recommends that Council approve the specifications and authorize bidding for materials, testing, and splicing equipment at an approximate cost of \$346,000.00, with staff returning to Council for award and appropriation of funds at a later date; and

WHEREAS, staff further recommends that funding in the amount of \$280,000.00 be appropriated from the 2003-05 budget to begin the engineering, training, and construction work associated with this project.

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council does hereby approve the specifications and authorizes advertisement for bids for 72,500 feet of ADSS fiber optic cable, pole line hardware, fiber optic test and splicing equipment, and GE OC-3 JungleMUX Multiplexer equipment; and

BE IT FURTHER RESOLVED that funds in the amount of \$280,000.00 be appropriated from the 2003-05 budget to begin the engineering, specialized fiber optic training, and substation and overhead construction work associated with this project.

Dated: November 5, 2003

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I hereby certify that Resolution No. 2003-201 was passed and adopted by the City Council of the City of Lodi in a regular meeting held November 5, 2003, by the following vote:

AYES: COUNCIL MEMBERS – Beckman, Hansen, Howard, Land, and Mayor Hitchcock

NOES: COUNCIL MEMBERS – None

ABSENT: COUNCIL MEMBERS – None

ABSTAIN: COUNCIL MEMBERS – None

  
SUSAN J. BLACKSTON  
City Clerk